

4. P. DEBYE, H. COLL and D. WOERMANN, J. Chem. Phys. **33**: 1746, 1960; **36**: 1803, 1962
5. V. Ye. ESKIN, Vysokomol. soyed. **2**: 1049, 1960
6. V. N. TSVETKOV, V. Ye. ESKIN and V. S. SKAZKA, Ukr. fizich. zh. **7**: 923, 1962
7. V. S. SKAZKA and N. A. NIKITIN, Vysokomol. soyed. **5**: 440, 1963
8. P. DEBYE, D. WOERMANN and B. CHU, J. Polymer Sci. **A1**: 255, 1963
9. D. MCINTYRE, A. WIMS and M. S. GREEN, J. Chem. Phys. **37**: 3019, 1962
10. P. DEBYE, D. WOERMANN and B. CHU, J. Chem. Phys. **36**: 851, 1962
11. V. Ye. ESKIN and O. Z. KOROTKINA, Vysokomol. soyed. **2**: 272, 1960
12. V. Ye. ESKIN, Zh. tekhn. fiz. **28**: 1459, 1958
13. V. Ye. ESKIN, Vizual'nyi krugovoi nefelometr. (Visual Circular Nephelometer.) Izd. FVINITI, Moscow, 1959
14. V. Ye. ESKIN and T. VOLKOV, Vysokomol. soyed. **5**: 614, 1963
15. V. Ye. ESKIN and A. Ye. NESTEROV, Ukr. fizich. zh. **2**: 540, 1964
16. P. DEBYE, B. CHU and H. KAUFMANN, J. Chem. Phys. **36**: 3378, 1962
17. B. CHU, J. Phys. Chem. **67**: 1969, 1963
18. V. Ye. ESKIN, Uspekhi fiz. nauk. **82**: 649, 1964
19. P. J. FLORY, Principles of the Polymer Chemistry, New York, 1953

POLYMERIZATION AND COPOLYMERIZATION OF β -METHACRYLOXYETHYLDIALKYL PHOSPHATES, β -METHACRYLOXYETHYLDIALKYL PHOSPHITES AND MIXED ANHYDRIDES OF METHACRYLIC AND DIALKYLPHOSPHOROUS ACIDS*

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IN PREVIOUS reports we have described the synthesis, polymerization and copolymerization of various α -(dialkylphospho)alkyl esters of methacrylic acid [1]. A study has been made of the effect of various factors on the rate of polymerization and the properties of polymers and copolymers formed. The polymers and copolymers were solid, rubber-like or pasty products with varying degrees of adhesion to glass and low inflammability and self-extinction. Continuing these investigations, we obtained several new phosphorus-containing esters of methacrylic acid belonging to the series of β -methacryloxyethylalkyl phosphites, β -methacryloxyethylalkyl phosphates, mixed anhydrides of methacrylic and dialkylphosphorous acids. The synthesis and certain chemical properties of these compounds were described by the authors in references [2, 3]. This investigation

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